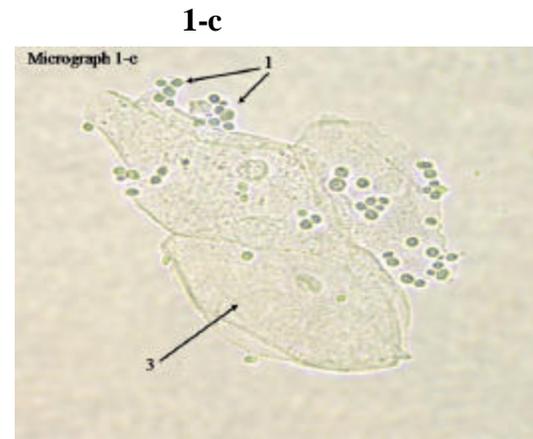
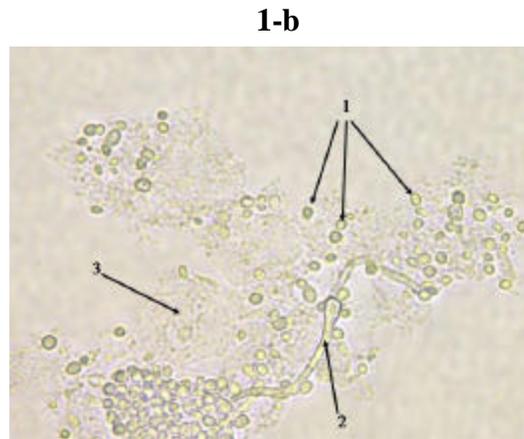
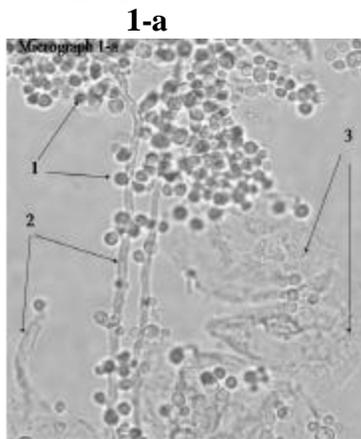


Wet Mount Proficiency Test 2006 A Critique

Micrograph 1



Expected Answers:

- 1 - Yeast cell
- 2 - Pseudohyphae
- 3 - Squamous Epithelial – not a clue cell

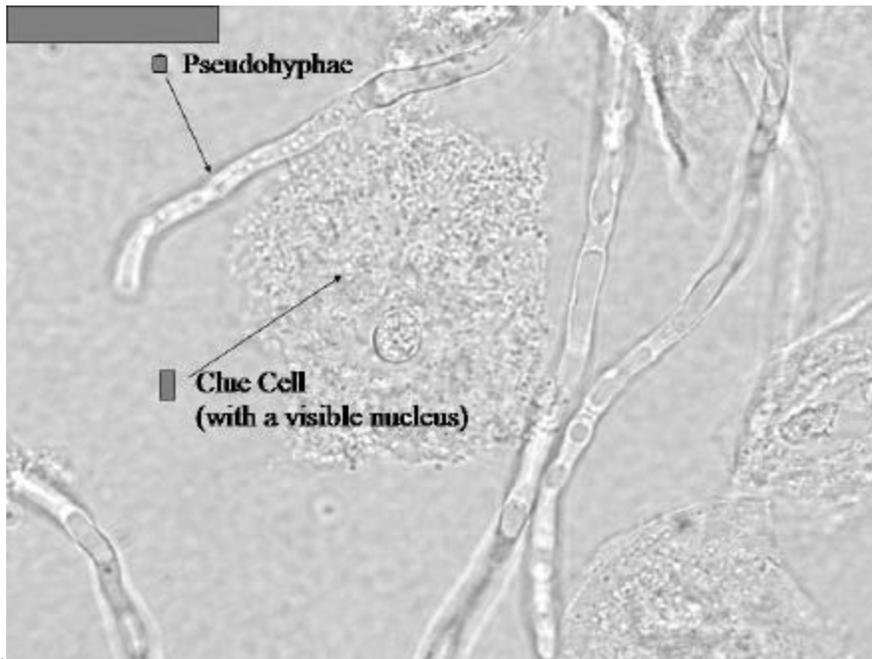
Discussion

1 – **Yeast cell:** the cells vary in shape from circular to oval, and are approximately 7.5 microns (μm) in diameter. Yeast cells are more variable in shape and are smaller than a red blood cell (which is approximately 10 microns in diameter). It is often possible to pick out the thick cell wall of the yeast cell. RBC, in comparison, have a cell membrane. In budding yeast cells, a single bud is observed.

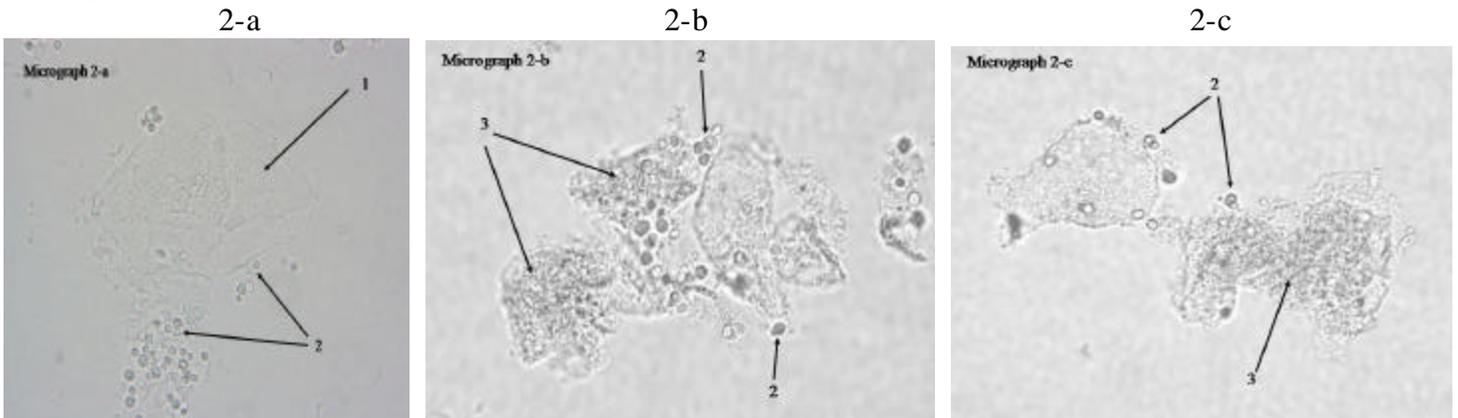
2 – **Pseudohyphae:** These are fragile tube-like structures that arise through elongation of the yeast form of *Candida*. Note: the pseudohyphal element seen in micrograph 1b shows a terminal swollen remnant of the original yeast cell. They are called pseudohyphae because they lack true branching as seen with mold like fungi. The side walls are parallel to each other which is an important characteristic that helps separate pseudohyphae from artifact whose side walls vary in width. Small oval structures called blastoconidia are often seen attached along the length of the pseudohyphae. The blastoconidia are smaller in size when compared to the yeast form of *Candida*.

3- **Squamous epithelial:** not a clue cell. The examples shown here are typical of a normal squamous epithelial cell. A cell nucleus and the cell boundary is clearly observed. The squamous epithelial cell is a large cell with a nucleus approximately 10 microns in diameter. The cell nucleus is therefore a handy tool for assessing the relative size of red blood cells, white blood cells, and yeast cells. A white blood cell is approximately the same size as the nucleus of the squamous epithelial cell while RBC's and yeast cells will be slightly smaller than the nucleus.

Being able to observe the cell nucleus is not always the distinguishing feature between normal epithelial cells and clue cells. As described below, the cell nucleus may be observed in a clue cell even if the cell margin is totally obscured.



Micrograph 2



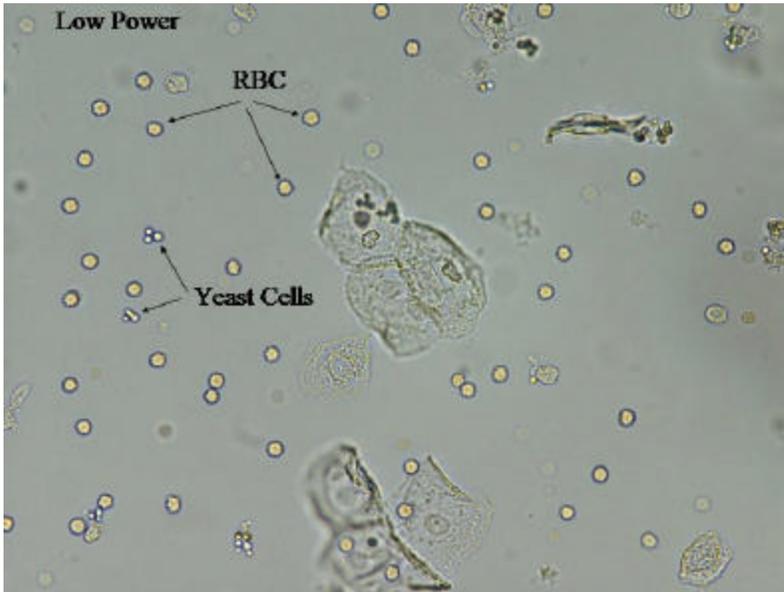
Expected Answers

- 1 – Squamous Epithelial – not a Clue Cell
- 2 – Yeast (non-graded due to non-consensus. Several sites identified this as a red blood cell)
- 3 – Squamous Epithelial Cell – Clue Cell

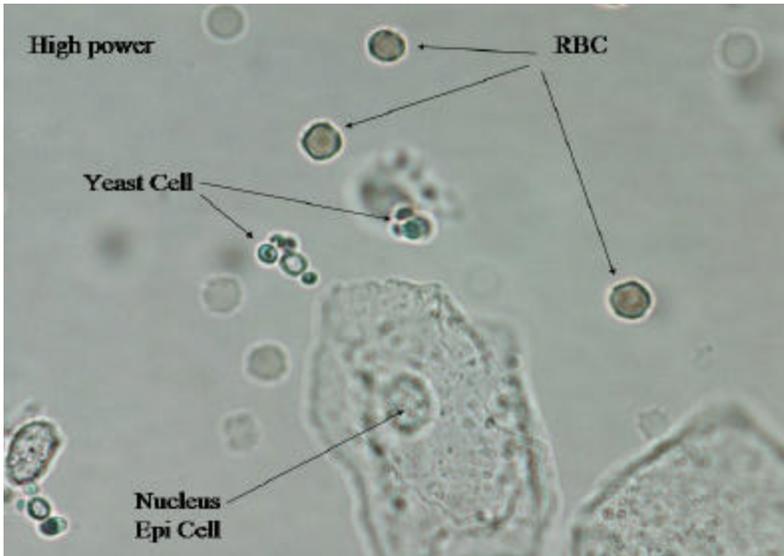
Description

1. **Squamous Epithelial** – see the description in micrograph A
2. **Yeast Cell:** This result will not be included in the grading of this challenge. There was less than 80% agreement among the participating labs. Many sites identified Item #2 of Micrograph 2 as red blood cells rather than yeast (which was the intended response).
Red blood cell vs Yeast: RBC are slightly larger and more uniform in shape than yeast cells. In fresh samples, RBC will be round. Because of the biconcave nature of RBC, a dimple may be observed in the middle of the cell. After 5-10 minutes, the RBC will crenate and get a jagged appearance. Yeast cells, in contrast, are slightly smaller than RBC and may be more oval than circular in shape. Yeast cells also may have a single bud.
3. **Clue Cells:** Clue cells are squamous epithelial cells that are covered with a thick mat of bacterial cells and is associated with bacterial vaginosis. The traditional definition of a clue cell is that the bacterial overgrowth is so thick that all cell detail (such as the cell nucleus and the cellular edge) are totally obscured. As shown in the above illustration, it is sometimes possible to detect the nucleus in a clue cell by using the fine focus knob to focus throughout the cell.

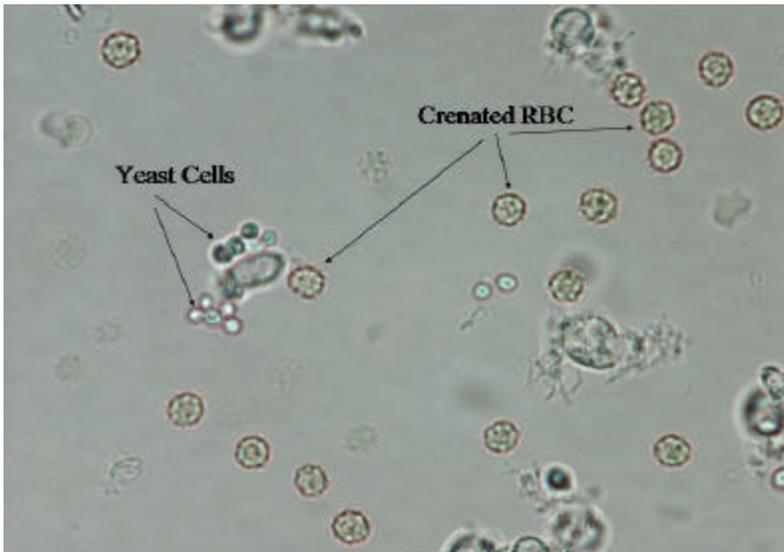
Red Blood Cell vs. Yeast #1



Red Blood Cell vs. Yeast - #2

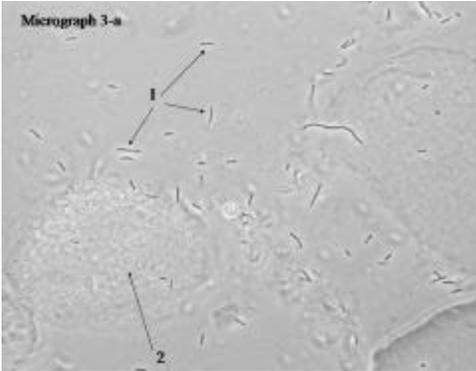


Red Blood Cell vs. Yeast - #3

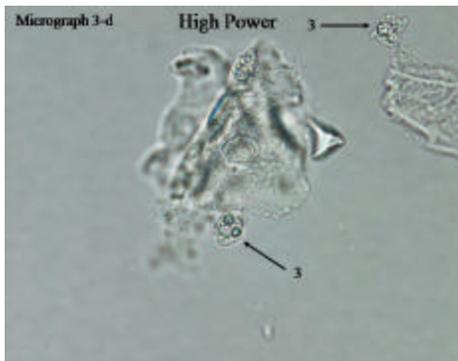
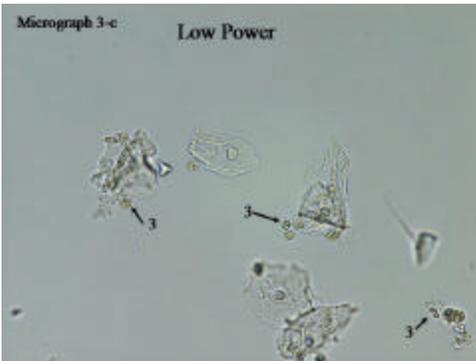
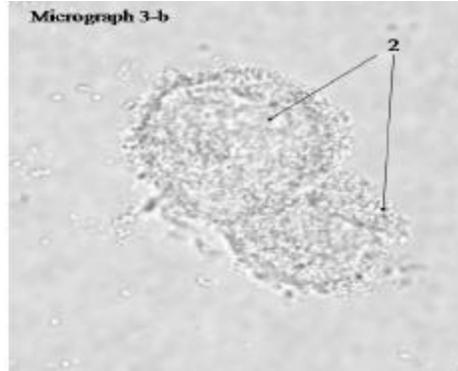


Micrograph 3

3-a



3-b



Expected Answers

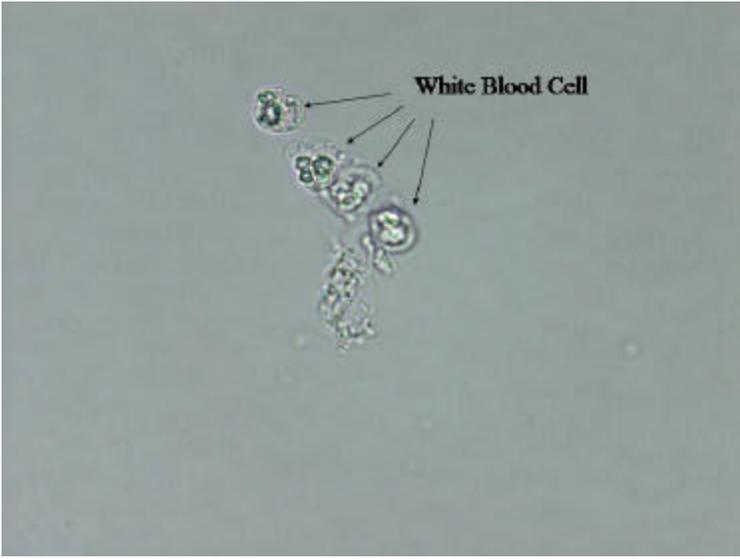
- 1 – Bacteria
- 2 – Squamous Epithelial Cell – Clue Cell
- 3 – White Blood Cell

Description

1 – The bacteria shown in this slide are characteristic of lactobacilli, which is normal flora in women following the onset on menses and will persist as normal flora until menopause. Bacterial vaginosis results from the synergistic association of *Gardnerella vaginalis* (a small gram-positive or gram-variable rod) and *Mobiluncus* sp. (a small curved anaerobic gram-rod). These are the bacteria which coat squamous epithelial cells. The presence of squamous epithelial cells thickly coated with bacteria is a “clue” to the detection of BV – hence the term “Clue Cell”.

2 – Clue Cell (see description above).

3 – White Blood Cells – these cells are larger than Red Blood Cells and are approximately the same size as the nucleus of a squamous epithelial cell. You can easily compare the relative size of the white blood cell with the size of the squamous epithelial cell nucleus by screening on low power. Under high power, the nuclear detail of the WBC becomes apparent. The WBC is characterized by a multilobed nucleus (usually three distinct lobes can be identified). The following micrograph (high power) shows four WBC. The three lobes may not always be present (at least in the same focal field), but you should be able to see them by using the fine focus to focus up and down.



Reviewed:

Date: _____

Date: _____

Date: _____

Date: _____